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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/669,986

09/23/2003

Lee Kong Weng

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EXAMINER

PAYNE, SHARON E

ART UNIT

PAPER NUMBER

2875

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/669,986	<b>Applicant(s)</b> WENG ET AL.	
	<b>Examiner</b> Sharon E. Payne	<b>Art Unit</b> 2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2007.
- 2a) ☒ This action is **FINAL**.      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>1106</u> | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 5-6, 8-9, 11-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishinaga (U.S. Patent 6,355,946) in view of Kyocera (JP 2002232017) and Curtin et al. (U.S. Patent 5,686,790).

Regarding claim 1, Ishinaga discloses a standalone light emitting diode package (abstract) comprising a housing comprising sidewalls (Fig. 1) and a substrate (reference number 1), the sidewalls and the substrate defining a cavity having a bottom (Fig. 1, see bottom portion of dotted lines), the substrate being located at the bottom of the cavity (Fig. 1, reference number 1), portions of the substrate engaging or being adjacent to the sidewalls (Fig. 2, see elliptical dotted line in the middle), the substrate being formed of ceramic (column 3, lines 50-55), at least one light-reflective metallic coating disposed over at least portions of the substrate (column 3, lines 65-68), a light emitting diode mounted on or in the substrate (abstract, Fig. 1), and optically transparent material disposed in the cavity and covering the light emitting

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diode (column 4, lines 25-30), wherein the ceramic composition of the substrate and the composition of the sidewalls and the light-reflective coating cooperate to minimize light leakage through or into the housing when the light emitting diode is energized (column 4, lines 55-65), the metallic coating reflects light incident thereon in a predetermined direction (column 3, lines 65-68, and Fig. 1), and the optically transparent material protects the light emitting diode (column 4, lines 25-30). Ishinaga does not disclose the metallic coating on the sidewalls and the vertical sidewalls being formed of one continuous and unitary piece of ceramic.

Kyocera discloses substantially vertical sidewalls (Fig. 4, reference number 33), the substantially vertical sidewalls being formed of ceramic (English abstract), and at least one light-reflective metallic coating disposed over at least portions of the sidewalls (Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Kyocera in the apparatus of Ishinaga to make the apparatus produce more light. See the English abstract of Kyocera.

Curtin et al. discloses substantially vertical sidewalls (Fig. 7), the vertical sidewalls being contiguous, continuous and uninterrupted respecting one another at the intersections thereof (Fig. 7, reference number 701), the housing forming a single unitary piece of ceramic (reference number 701, Fig. 7), the housing minimizing light leakage through, into or out of the housing (Fig. 7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Curtin et al. in the apparatus of Ishinaga to enable one to attach driver circuits to the substrate (column 3, line 55, to column 4, line 6, of Curtin et al.).

Regarding claims 3 and 9, Ishinaga discloses the cavity being substantially white in color (column 4, lines 30-35).

Concerning claims 5 and 11, Ishinaga discloses the metallic coating being comprising gold (column 3, lines 65-68, Fig. 1).

Regarding claims 6 and 12, Ishinaga discloses the metallic coating being formed by plating (column 3, lines 65-68).

Regarding claim 8, Ishinaga discloses a housing having sidewalls (Fig. 1) and a substrate (reference number 1), the sidewalls and the substrate defining a cavity having a bottom (Fig. 3, lower middle), the substrate being located at the bottom of the cavity (Fig. 1), portions of the substrate engaging or being adjacent to the sidewalls (Fig. 1), the substrate being formed of ceramic (column 3, lines 50-55), at least one light-reflective metallic coating being disposed over at least portions of the substrate (column 3, lines 65-68, Fig. 1), a light emitting diode being mounted on or in the substrate (abstract, Fig. 1, reference number 3A), an optically transparent material being disposed in the cavity and covering the light emitting diode (column 4, lines 25-30), the ceramic composition of the substrate and the composition of the sidewalls and the light-reflective coating cooperating to minimize light leakage through or into

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the housing when the light emitting diode is energized (column 4, lines 55-65), the metallic coating reflecting light incident thereon in a predetermined direction (column 3, lines 65-68, and Fig. 1), and the optically transparent material protecting the light emitting diode (column 4, lines 25-30), the method comprising providing the housing (Fig. 1), coating at least portions of the substrate with a light-reflective metallic coating (column 3, lines 65-68), mounting the light emitting diode on or in the substrate (Fig. 1, abstract) and depositing the optically transparent material in the cavity (column 4, lines 25-30). Ishinaga does not disclose stamping the ceramic, the substantially vertical sidewalls being unitary with each other or with a metallic coating, or the step of coating the sidewalls with the at least one light-reflective metallic coating.

Kyocera discloses substantially vertical sidewalls (Fig. 4, reference number 33), the substantially vertical sidewalls being formed of ceramic (English abstract), at least one light-reflective metallic coating disposed over at least portions of the sidewalls (Fig. 4), and the step of coating the at least portions of the sidewalls with the at least one light-reflective metallic coating (Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Kyocera in the apparatus of Ishinaga to make the apparatus produce more light. See the English abstract of Kyocera.

Curtin et al. discloses substantially vertical sidewalls (Fig. 7), the vertical sidewalls being contiguous, continuous and uninterrupted respecting one another at the intersections thereof (Fig. 7, reference number 701), the housing forming a single unitary piece of ceramic (reference number 701, Fig. 7), the housing minimizing light leakage through, into or out of the housing (Fig. 7), and the step of stamping the housing from the single unitary piece of ceramic (column 24, lines 10-15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Curtin et al. in the apparatus of Ishinaga to enable one to attach driver circuits to the substrate (column 3, line 55, to column 4, line 6, of Curtin et al.).

Concerning claim 14, Ishinaga discloses the step of depositing epoxy as the optically transparent material in the cavity (column 4, lines 25-30).

3. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishinaga in view of Kyocera and Curtin et al. as applied to claims 1 and 8 above, and further in view of Zou et al. (U.S. Patent 6,186,649).

Concerning claims 4 and 10, Ishinaga, Kyocera and Curtin et al. do not disclose using silver as a reflective coating. Zou et al. discloses the metallic coating comprising silver (column 6, lines 10-15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the silver coating of Zou et al. in the apparatus

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of Ishinaga, Kyocera and Curtin et al. to achieve “high output irradiance[.]” See column 1, lines 60-65, of Zou et al.

4. Claims 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishinaga in view of Kyocera and Curtin et al. as applied to claims 1 and 8 above, and further in view of Huang (U.S. Patent 6,715,901).

Regarding claims 7 and 13, Ishinaga, Kyocera and Curtin et al. do not disclose the cavity being formed (or configured) to contain a plurality of LEDs. Huang discloses the ceramic cavity being formed to contain a plurality of LEDs (column 4, lines 62-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Huang in the apparatus of Ishinaga, Kyocera and Curtin et al. to increase light output per apparatus.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1 and 3-14 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.**



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See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

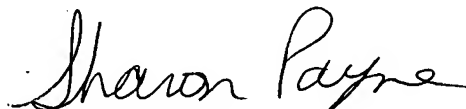
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon E. Payne whose telephone number is (571) 272-2379. The examiner can normally be reached on regular business hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sep



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